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ABSTRACT

The contention of this paper is that logicality and emotionality are not two poles of a continuum but orthogonal dimensions which may exist to varying degrees in an argument. It was hypothesized that: (1) logicality and emotionality would be perceived as independent components by subject; and (2) messages high in logic would have more influence on attitudes than messages low in logic. In a series of eight experiments, the two dimensions were objectively manipulated within written essays in a 2x2 ANOVA design. Subjects (an average of 67 per experiment) were undergraduates at a small midwestern college. Subjects' ratings confirmed the subjective independence of the dimensions. Attitude change as a function of high/low logicality and/or emotionality was also examined. While emotionality had no effect, there was a weak but consistent effect for logicality; but even the reading of illogical essays resulted in attitudes significantly different from those of a control group. One figure and one table of data are included. Twenty-four references are attached. (Author/SR)

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Logicality and Emotionality in Argumentation

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ABSTRACT

Logicality and Emotionality in Argumentation

The contention of this paper is that logicality and emotionality are not two poles of a continuum but orthogonal dimensions which may exist to varying degrees in an argument. In a series of experiments, these two dimensions were objectively manipulated within written essays in a 2 x 2 ANOVA design. Subjects' ratings confirmed the subjective independence of the dimensions. Attitude change as a function of high/low logicality and/or emotionality was also examined. While emotionality had no effect, there was a weak but consistent effect for logicality; but even the reading of illogical essays resulted in attitudes significantly different from those of a control group.

Past research examining the role of logicality and emotionality in argumentation is equivocal for several reasons: 1) terms have been defined in many different ways, 2) different terms have been used for the same concepts, and 3) researchers have not agreed on whether logicality and emotionality represent two poles of one dimension or two discrete dimensions. Some studies have been flawed by virtue of comparing effects of messages whose content was not held constant and, from our point of view, with falsely assuming that an argument could be rated as either logical or emotional.

Most previous research has been reported in the speech rather than psychology literature (e.g., Becker, 1963; Cronkhite, 1964). Some researchers found logicality superior in affecting attitudes (e.g., Weiss, 1960), while others found emotionality superior (Eldersveld, 1956; Hartmann, 1935). Some found neither superior (e.g., Knower, 1935; Mathews, 1947).

Logicality and emotionality as two dimensions of an argument

Some psychologists have implied that logicality and emotionality represent two poles of a continuum (e.g., Hovland et al, 1953; Zimbardo et al, 1977) but it is our belief that logicality and emotionality are two distinct dimensions of an argument. To examine their effects on attitudes and beliefs, one must treat them as separate dimensions. Support for this belief comes from contemporary research as well as rhetorical tradition. Both Ruchuelle (1958) and Wollman (1980) found no significant correlations between ratings of logicality and emotionality of arguments (the former in written messages, the latter in speeches). If they were poles on a continuum, one would expect a significant negative correlation between the ratings for any one message.

The traditional Greek idea of successful argumentation or persuasion included aspects of logicality (logos), emotionality (pathos), and personality or character (ethos) (Campbell, 1982). These were seen as mutually supportive rather than mutually exclusive elements. Some others engaged in persuasion research have believed logicality and emotionality to be separate dimensions (McGuire, 1969; Becker, 1963; Aronson, 1976.)

Recent advertising research has supported the belief that logicality and emotionality can coexist in a message and, in fact, be complementary. Successful advertisements often contain a combined appeal to reason and emotion (Agres, 1985), with the successful mix of logic and emotion being relative to the kind of product being marketed (Zaichowsky & Hill, 1985).

Research manipulating emotionality or logicality independently

Some studies have made comparisons within the dimension of emotionality. Emotionality has been variously operationalized. One approach has been to characterize it as the response elicited in the receiver of the message (Agres, 1985; Weiss, 1960). Several studies have addressed the question of whether the "vividness" of the information in a message might increase its persuasive power. Winkler et al (1979) found vivid language to influence attitudes in only one of their three studies. In that case, vivid language interacted with other factors to improve subjects' recall of the message, increase their concern about the topic, and later attitudes toward the topic (nuclear power). Others, investigating effects of similar manipulations, have seen no effect (Pearce & Brommel, 1972), gotten opposite results (Bowers, 1963) or gotten mixed results (Carmichael & Cronkhite, 1965).

Only one study could be found that manipulated the level of inconsistency and self-contradiction of evidence (level of logicality) (Dresser, 1963). Dresser found no effect for degree of logicality. Moreover, subjects were unable to detect self-contradictory evidence when given the chance to do so.

Experimental manipulations and hypotheses for the current studies

Logicality was manipulated in terms of degree to which propositions were compatible and conclusions flowed from the evidence provided. We did not use criteria of formal logic to produce high-logic essays, rather we agreed with Kyburg (1983) that to be accepted as logical an argument need only have no obvious contradictions in the evidence offered in support of it. Low-logic essays, on the other hand, contained clear contradictions. Emotionality was manipulated in terms of vividness of language (cf. Winkler et al, 1979). Colorful, graphic vocabulary was used to convey a high degree of emotion.

Our two hypotheses were: 1) logicality and emotionality will be perceived as independent components by subjects and 2) messages high in logic will have more influence on attitudes than messages low in logic.

Overview of Method

Subjects. Subjects for all experiments were drawn from the undergraduate population of a small midwestern college. Numbers ranged from 48 to 84 per experiment, with an average of 67. Two groups of students participated as subjects for experiment 7: 36 students of Spanish and 40 students of French (hypothesized to be more "ego-involved" with the topic of Experanto). Experiment 8 used two groups of 31 and 33 students as subjects.

Materials. We constructed four versions of a brief essay on Esperanto representing the possible combinations of high and low logicality and emotionality (HL/HE, HL/LE, LL/HE, LL/LE). (See Figure 1 for excerpts from the essays.) The essays purported to support the need for an international language. Two basic questionnaires were used: one for Experiment 1 which asked subjects to rate the essay read in terms of logicality and emotionality, and another for the remaining experiments, assessing subjects' attitudes about Esperanto. A modified version of the second questionnaire was used in Experiment 7; questions assessing degree of "ego-involvement" of subjects with the topic were added.

Procedure. Subjects were randomly assigned to one of four groups in a two (level of logicality) by two (level of emotionality) ANOVA design. Subjects read the essays and answered written questions about them.

Experiment 1

In the first experiment we sought to determine whether subjects would perceive the dimensions of logicality and emotionality as distinct and in the way we had construed them in the essays.

Subjects. Seventy-two undergraduate students.

Materials. Essays, as described above; a questionnaire asking subjects to rate levels of logicality and emotionality of the essays on 9-point scales.

Procedure. As described above. After reading the essays, subjects answered questions about them, and rated their logicality and emotionality.

Results. Analyses of variance showed that subjects did distinguish high-logic essays as more logical than low-logic essays ($p < .001$) and high-emotion essays as more emotional than low-emotion essays ($p < .01$).

Figure 1

Excerpts from the Four Essays on Esperanto

High Logic/High Emotion

Let us strike while the iron is hot and adopt Esperanto. Day by day the citizens of the earth become more dependent upon their brothers and sisters. Thus the earth is rushing headfirst toward what Marshall McLuhan has properly termed a "global village."

High Logic/Low Emotion

It is the right time for the world to adopt Esperanto. The people of the world are more dependent on each other every day. The earth is becoming, in Marshall McLuhan's phrase, a "global village."

Low Logic/High Emotion

Let us strike while the iron is hot and adopt Esperanto. Day by day the citizens of the earth become more independent of their brothers and sisters. Thus, the world is rushing headfirst toward what Marshall McLuhan has termed a "global village."

Low Logic/Low Emotion

It is the right time for the world to adopt Esperanto. People become more independent of each other every day. Thus, Marshall McLuhan has called the planet a "global village."

All other effects were nonsignificant ($p > .05$).

(General discussion follows presentation of all results.)

Experiments 2,3,4,5,and 6

Subjects. Numbers of subjects for experiments 2-6 were, respectively, 80, 56, 56, 48, and 84.

Materials. As described above: 4 essays and second questionnaire.

Procedure. As described in Experiment 1, but in addition to rating essays' logicality and emotionality, subjects answered questions on their attitudes about Esperanto. Subjects in Experiment 2 also rated the quality of writing of the essays they read, as a check to ensure that would not be a confounding variable.

Results. In all but Experiment 6, subjects perceived the logical and emotional dimensions in the essays. In experiment 6, though subjects rated high-emotion essays as more emotional, they did not rate high-logic essays as more logical; and they confused low-logicality with emotionality.

In Experiments 2,4, and 6, there were no inter-group attitude differences. Subjects in Experiment 2 did not judge passages different from each other in terms of writing quality, [logicality, $F(1/76) = 0.19$, $p > .05$; emotionality, $F(1/76) = 0.00$, $p > .05$; interaction, $F(1/76) = 0.16$, $p > .05$].

In Experiments 3 and 5, groups who had read essays high in logicality had significantly more positive attitudes towards Esperanto than other groups. (See Table 1 for summary of outcomes. Higher means reflect more positive attitudes towards Esperanto.)

Table 1

Mean Attitude Scores for the Four Essays in Each Experiment

Experiment 2

		emotionality: low	emotionality: high
logicality	low	19.5	17.4
	high	19.0	19.3

Experiment 3*

		emotionality: low	emotionality: high
logicality	low	16.6	16.4
	high	19.7	19.3

Experiment 4

		emotionality: low	emotionality: high
logicality	low	17.7	18.6
	high	20.0	18.7

Experiment 5**

		emotionality: low	emotionality: high
logicality	low	16.4	19.3
	high	21.4	20.4

Experiment 6

		emotionality: low	emotionality: high
logicality	low	18.3	18.0
	high	17.0	19.8

Experiment 7

		emotionality: low	emotionality: high
French lang. students	low logicality	16.7	17.8
	high	18.3	18.7
Spanish lang. students	low logicality	16.2	19.6
	high	19.3	20.1

*Logicality manipulation significant, $p < .025$

**Logicality manipulation significant,

Experiment 7

In the face of mixed results, we decided to assess the possible contribution of another factor. Ego-involved subjects (those who have a particular interest in a topic) have been shown to be more readily influenced by strong arguments than are those for whom the topic has little importance (e.g., Petty and Cacciopo, 1984). We considered our highly logical arguments equivalent to "strong" arguments. For Experiment 7 we chose subjects who would presumably be more ego-involved with the topic of Esperanto than others.

Subjects. Two groups of students: Group 1, 36 students of Spanish; Group 2, 40 students of French.

Materials. As described above, with questionnaire slightly modified to include two additional questions about how much they thought about the topic of Esperanto and how important it was to their life.

Procedure. Subjects in each of the two groups were randomly assigned to one of the four groups, as above. Subjects read the essays and completed the questionnaire. Responses were compared to those of controls.

Results. Subjects were more ego-involved vis-a-vis Esperanto than controls, but there were no significant inter-group differences in attitudes toward Esperanto.

Experiment 8

With such inconsistent results, we decided to do a baseline measure of people's opinions about Esperanto.

Subjects. Two groups of students, Group 1, 31 subjects and Group 2, 33 subjects, participated.

Materials. The questionnaire used in Experiments 2-6, modified slightly. The same attitude questions about Esperanto were asked.

Procedure. Subjects did not read any essay. The two groups completed the questionnaire (at different times).

Results. Group 1's mean response was significantly lower than that of all experimental groups ($X^2(1)=14.0, p < .001$). Group 2's mean response was significantly lower than that of groups who read essays high in logic ($X^2(1)=14.0$, $p < .001$), but not significantly lower than that of groups who read essays low in logic (though there was a trend in that direction).

Overall Analysis of Results

Though analyses of variance in Experiments 2-7 yielded only two significant results for the logicality variable, collapsing levels of emotionality, the high-logic essays consistently produced higher mean attitude scores than did the low-logic passages ($X^2(1)=7.0$, $p < .01$; See Table 1). When high-logic and low-logic essays were compared separately for the high and low-emotion conditions, twelve times out of fourteen the high-logic mean was higher than the low-logic mean ($X^2(1)=7.14$, $p<.01$). Examination of the data for overall trends regarding emotionality and the interaction effect revealed none, that is, the logicality effect was not influenced by the emotionality of a passage.

General Discussion

The preponderance of evidence supports our first hypothesis, i.e., that logicality and emotionality are distinct dimensions of an argument and can be perceived as such when operationalized as described. Five out of the six times this hypothesis was tested it was supported.

Whereas attitudes were not affected by degree of emotionality in any experiment, they were affected by degree of logicality in two of the

experiments. The overall analysis of results shows a weak, but consistent effect of logicality on attitudes. To judge from the last experiment, there is continued support for the belief that reading anything about a topic can influence attitudes; but it appears that many people will require logical argumentation to be affected.

Some research has shown that emotionality can have positive effects (Sherer & Rogers, 1984; Winkler et al,1979). It is possible that moderate levels of emotionality would have a positive effect that a high level does not, and if we were to redo the studies, we would perhaps design passages that represent more than two extremes of emotionality.

Other important factors influencing the persuasive power of messages have to do with characteristics of receivers (group membership, level of education, e.g.) and topic of the message. It is possible that more or less educated subjects would respond quite differently to the same essays; and a more exiting topic than "Esperanto" might generate a greater range of responses.

Research on effects of emotionality and logicality on attitudes has applications well beyond the advertising community. Deeper understanding of how people's attitudes are influenced could help parents with their teenagers, environmental activists with the public, lawyers with juries, doctors with patients. At the same time, such understanding allows all of us to be critical receivers of messages -- whether they are advertising messages, pleas from adolescents, or attempts by loved ones to nudge us to take care of a health problem. So, although the potential for manipulation of others' thinking may be enhanced by such knowledge, the potential for critical evaluation of messages may be enhanced as well.

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